

Bureau of Reclamation, Interior

§ 418.38

by the District and the Bureau in advance of any storage credit.

(b) An example of this concept is:

Example: *Incentive Operation*—

(1) At the end of the 1996 irrigation season, the Bureau and the District audit the District's water records for 1996. The District's water delivery records show that 194,703 acre-feet of water were delivered to farm headgates. On the basis of their irrigated acreage that year (59,075) the farm headgate entitlement would have been 216,337 acre-feet. On the basis of 90 percent deliveries for 59,075 acres (194,203 divided by 216,337 = 0.90) the established Project efficiency requirement was 65.1 percent.

(2) On the basis of the established Project efficiency (66.1 percent), the Project diversion required to make the headgate deliveries would be expected to be 291,909 acre-feet (194,703 divided by 0.651 = 291,909). An examination of Project records reveals that the District only diverted 286,328 acre-feet which demonstrated actual Project efficiency was 68 percent and exceeded requirements of this part.

(3) The 5,581 acre-feet of savings (291,909 - 286,328 = 5,581) constitutes the savings achieved through efficiency improvements and the District would then be credited two-thirds (3,721 acre-feet = 5,581 x 2/3) of this water (deemed to be Carson River water savings) as incentive water.

(4) This incentive water may be stored in Lahontan Reservoir or otherwise used by the District in its discretion consistent with State and Federal Law (e.g., power generation, recreation storage, wildlife, drought protection, etc.).

§ 418.37 Disincentives for lower efficiency.

(a) If the District fails to meet the efficiencies established by this part, then, in effect, the District has borrowed from a subsequent year. The amount borrowed will be accounted for in the form of a deficit in Lahontan Reservoir storage. This deficit amount will be added to the actual Lahontan Reservoir storage quantity for the purpose of determining the Truckee River diversions to meet storage objectives as well as all other operating decisions.

(b) The amount of the deficit will be cumulative from year to year but will not be allowed to exceed 26,000 acre-feet (the expected variance between the MAD and actual water use). This limit is expected to avoid increasing the severity of drought and yet still allow for variations in efficiency over time due to weather and other factors. This ap-

proach should allow the District to plan its operation to correct for any deficiencies.

(c) The deficit can be reduced by crediting incentive water earned by the District or reducing the percentage of headgate entitlement delivered either through a natural drought or by the District and its water users administratively limiting deliveries while maintaining an efficiency greater than or equal to the target efficiency.

(d) If there is a natural drought and the shortage to the headgates is equal to or greater than the deficit, then the deficit is reduced to zero. If the shortage to headgates is less than the deficit then the deficit is reduced by an amount equal to the headgate shortage. During a natural drought, if the percentage of maximum headgate entitlement delivered is 75 percent or more then the District will be subject to the target efficiencies and resultant deficits or credits.

(e) If the District has a deficit in Lahontan Reservoir and earns incentive water, the incentive water must be used to eliminate the deficit before it can be used for any other purpose. The deficit must be credited on a 1 to 1 basis (i.e., actual efficiency savings rather than $\frac{1}{3}$ - $\frac{2}{3}$ for incentive water).

(f) An example of the penalty concept is:

Example: *Penalty*—

In 1996 the District delivers 90 percent of the maximum headgate entitlement or 194,703 acre-feet (216,337 x .90) but actually diverts 308,000 acre-feet. The efficiency of the Project is 63.2 percent (194,703 divided by 308,000). Since the established efficiency of 65.1 percent would have required a diversion of only 299,083 acre-feet (194,703 divided by .651) the District has operated the system with 8,917 acre-feet of excess losses. Therefore, 8,917 acre-feet was borrowed and must be added to the actual storage quantities of Lahontan Reservoir for calculating target storage levels and Truckee River diversions.

§ 418.38 Maximum allowable diversion.

(a) The MAD established in this part is based on the premise that the Project should be operated to ensure that it is capable of delivering to the headgate of each water right holder the full water entitlement for irrigable eligible acres and includes distribution system losses. The MAD will be established (and is likely to vary) each year.

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The annual MAD will be calculated each year based on the actual acreage to be irrigated that year.

(b) Historically, actual deliveries at farm headgates have been approximately 90 percent of entitlements. This practice is expected to continue but the percentage is expected to change. This variance between headgate deliveries and headgate entitlements will be calculated annually under this part and is allowed to be diverted if needed and thereby provides an assurance that

full headgate deliveries can be made. The expected diversion and associated efficiency target for the examples shown in the Newlands Project Water Budget table would be: 285,243 AF and 65.1 percent in 1996 and beyond. These are well below the MAD limits; however, the District may divert up to the MAD if it is needed to meet valid headgate entitlements.

APPENDIX A TO PART 418—CALCULATION
OF EFFICIENCY EQUATION

Calculation of Efficiency Equation Slope and Y-Intercept for Adjusted OCAP														
	1988 OCAP		With Adjusted OCAP											
	Projected for 1992	Without added ac.	64,850	61,630	64,850	64,500	64,000	63,500	63,000	62,500	62,000	61,500	61,000	60,500
Irrigated Acreage	64,850	61,630	64,850	61,630	64,500	64,000	63,500	63,000	62,500	62,000	61,500	61,000	60,500	60,000
Max. Headgate Entitlement	237,485	226,555	226,586	225,363	223,616	221,869	218,375	216,628	214,881	213,134	211,387	209,640		
Distribution System Losses														
Evaporation														
Canals/Laterals	6,200	6,000	6,200	6,178	6,147	6,116	6,085	6,054	6,023	5,992	5,961	5,930	5,899	
Reg. Reservoirs	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500
Seepage														
Canals/Laterals	51,000	48,500	51,000	50,728	50,340	49,952	49,564	49,175	48,787	48,399	48,011	47,623	47,234	
Reg. Reservoirs	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Operational Losses	40,800	39,400	40,800	40,648	40,430	40,213	39,996	39,778	39,561	39,343	39,126	38,909	38,691	
Total System Losses	109,500	105,400	109,500	109,054	108,418	107,781	107,144	106,508	105,871	105,234	104,598	103,961	103,325	
100% Use of Entitlement:														
Allowable Diversion	346,985	331,955	336,086	334,417	332,034	329,650	327,266	324,883	322,499	320,115	317,732	315,348	312,965	
Conveyance Efficiency	68.44%	68.25%	67.42%	67.39%	67.35%	67.30%	67.26%	67.22%	67.17%	67.13%	67.08%	67.03%	66.99%	
75% Use of Entitlement:														
Headgate Ent. Unused	59,371	56,639	56,646	56,341	55,904	55,467	55,031	54,594	54,157	53,720	53,284	52,847	52,410	
Headgate Delivery	178,114	169,916	169,939	169,022	167,712	166,402	165,092	163,781	162,471	161,161	159,851	158,540	157,230	
Diversion Reduction	68,717	65,554	65,563	65,209	64,704	64,198	63,693	63,187	62,682	62,176	61,671	61,165	60,660	
Allowable Diversion	278,268	266,401	270,523	269,208	267,330	265,452	263,574	261,696	259,817	257,939	256,061	254,183	252,305	
Conveyance Efficiency	64.01%	63.78%	62.82%	62.78%	62.74%	62.69%	62.64%	62.58%	62.53%	62.48%	62.43%	62.37%	62.32%	
Slope	0.1774	0.1787	0.1840	0.1842	0.1845	0.1847	0.1850	0.1853	0.1856	0.1858	0.1861	0.1864	0.1867	
Y-Intercept	50,700	50,380	49,020	48,970	48,900	48,830	48,760	48,690	48,620	48,550	48,470	48,390	48,310	

Note: (1) The average water duty with Adjusted OCAP assumed to be 3.494 acre-feet/acre based on 1995 conditions.
 (2) The conveyance efficiency of the unused entitlement (75% use) assumed to be 86.4% based on Figure 1 and Table 1 of 1988 OCAP.

Calculation of Efficiency Equation Slope and Y-Intercept for Adjusted OCAP
 Adjusted OCAP (continued)

Calculation of Efficiency Equation Slope and Y-Intercept for Adjusted OCAP																
	Adjusted OCAP (continued)															
	59,500	59,000	58,500	58,000	57,500	57,000	56,500	56,000	55,500	55,000	54,500	54,000	53,500	53,000	52,500	52,000
	207893	206146	204399	202652	200905	199158	197411	195664	193917	192170	190423	188676	186929	185182	183435	181688
Irrigated Acreage	59,500	59,000	58,500	58,000	57,500	57,000	56,500	56,000	55,500	55,000	54,500	54,000	53,500	53,000	52,500	52,000
Max. Headgate Ent.	207893	206146	204399	202652	200905	199158	197411	195664	193917	192170	190423	188676	186929	185182	183435	181688
Distribution Losses																
Evaporation																
Canal/Laterals	5868	5837	5806	5775	5743	5712	5681	5650	5619	5588	5557	5526	5495	5464	5433	5402
Reg. Reservoirs	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500
Seepage																
Canal/Laterals	46846	46458	46070	45682	45293	44905	44517	44129	43741	43352	42964	42576	42188	41800	41411	41023
Reg. Reservoirs	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000
Operational Losses	38474	38257	38039	37822	37604	37387	37170	36952	36735	36517	36300	36083	35865	35648	35430	35213
Total System Losses	102688	102051	101415	100778	100141	99505	98868	98231	97595	96958	96321	95685	95048	94411	93775	93138
100% Use of Ent.																
Allowable Diversion	310581	308197	305814	303430	301046	298663	296279	293895	291512	289128	286744	284361	281977	279593	277210	274826
Convey. Efficiency	66.94%	66.89%	66.84%	66.79%	66.74%	66.68%	66.63%	66.58%	66.52%	66.47%	66.41%	66.35%	66.29%	66.23%	66.17%	66.11%
75% Use of Ent.																
Entitlement Unused	51973	51537	51100	50663	50226	49790	49353	48916	48479	48043	47606	47169	46732	46296	45859	45422
Headgate Delivery	155920	154610	153299	151989	150679	149369	148058	146748	145438	144128	142817	141507	140197	138887	137576	136266
Diversion Reduction	60154	59649	59143	58638	58132	57627	57121	56616	56110	55605	55099	54594	54088	53583	53077	52572
Allowable Diversion	250427	248549	246670	244792	242914	241036	239158	237280	235401	233523	231645	229767	227889	226011	224133	222254
Convey. Efficiency	62.26%	62.20%	62.15%	62.09%	62.03%	61.97%	61.91%	61.85%	61.78%	61.72%	61.65%	61.59%	61.52%	61.45%	61.38%	61.31%
Slope	0.1870	0.1873	0.1876	0.1879	0.1882	0.1886	0.1889	0.1892	0.1895	0.1899	0.1902	0.1906	0.1909	0.1913	0.1916	0.1920
Y-Intercept	48.24	48.16	48.08	47.99	47.91	47.83	47.74	47.66	47.57	47.48	47.39	47.30	47.20	47.11	47.01	46.91

Note: (1) The average water duty with Adjusted OCAP assumed to be 3.494 acre-feet/acre based on 1995 conditions.
 (2) The conveyance efficiency of the unused entitlement (75% use) assumed to be 86.4% based on Figure 1 and Table 1 of 1988 OCAP.

PART 420—OFF-ROAD VEHICLE USE

- Sec.
- 420.1 Objectives.

- 420.2 General closure.
- 420.3 Adjacent lands.
- 420.4 Enforcement.
- 420.5 Definitions.